

Signed 9/30/97

4WD-RCRA

SUBJ: Evaluation of the University of Florida's status under
the RCRIS Corrective Action Environmental Indicator
Event Codes (CA725 and CA750)
EPA I.D. Number: FLD 000 823 393

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TO: Narindar M. Kumar, Chief
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I. PURPOSE OF MEMO

This memo is written to formalize an evaluation of the University of Florida's status in relation to the following corrective action event codes defined in the Resource Conservation and Recovery Information System (RCRIS):

- 1) Human Exposures Controlled Determination (CA725),
- 2) Groundwater Releases Controlled Determination (CA750).

The application of these event codes at University of Florida's adheres to the event code definitions found in the Data Element Dictionary for RCRIS.

Concurrence by the RCRA Programs Branch Chief is required prior to entering these event codes into RCRIS. Your concurrence with the interpretations provided in the following paragraphs and the subsequent recommendations is satisfied by dating and signing above.

II. HUMAN EXPOSURES CONTROLLED DETERMINATION (CA725)

There are five (5) national status codes under CA725. These status codes are:

- 1) YE Yes, applicable as of this date.
- 2) NA Previous determination no longer applicable as of this date.
- 3) NC No control measures necessary.
- 4) NO Facility does not meet definition.

5) IN More information needed.

The first three (3) status codes listed above were defined in January 1995 Data Element Dictionary for RCRIS. The last two (2) status codes were defined in June 1997 Data Element Dictionary.

Note that CA725 is designed to measure human exposures over the entire facility (i.e., the code does not track SWMU specific actions or success). Every area at the facility must meet the definition before a YE or NC status code can be entered for CA725. The NO status code should be entered if there are current unacceptable risks to humans due to releases of hazardous wastes or hazardous constituents from any SWMU(s) or AOC(s). The IN status code is designed to cover those cases where insufficient information is available to make an informed decision on whether or not human exposures are controlled. If an evaluation determines that there are both unacceptable and uncontrolled current risks to humans at the facility (NO) along with insufficient information on contamination or exposures at the facility (IN), then the priority for the EI recommendation is the NO status code.

In Region 4's opinion, the previous relevance of NA as a meaningful status code is eliminated by the June 1997 Data Element Dictionary's inclusion of NO and IN to the existing YE and NC status codes. In other words, YE, NC, NO and IN cover all of the scenarios possible in an evaluation or reevaluation of a facility for CA725. Therefore, it is Region 4's opinion that only YE, NC, NO and IN should be utilized to categorize a facility for CA725. No facility in Region 4 should carry a NA status code.

This particular CA725 evaluation is the first evaluation performed by EPA for the University of Florida. Because assumptions have to be made as to whether or not human exposures to current media contamination are plausible and, if plausible, whether or not controls are in place to address these plausible exposures, this memo first examines each environmental media (i.e., soil, groundwater, surface water, air) at the entire facility including any offsite contamination emanating from the facility rather than from individual areas or releases. After this independent media by media examination is presented, a final recommendation is offered as to the proper CA725 status code for the University of Florida.

The following discussions, interpretations and conclusions on contamination and exposures at the facility are based on the following reference documents: 1996 Site Closure Plan for Building 508 Drainfield Area and the Pesticide Burial Pit Area, October 1995 Preliminary Assessment Report for the Chemical

Disposal Site (Old Murphy Landfill), May 1994 RCRA Facility Assessment.

III. FACILITY SUMMARY

The University of Florida is an education and research facility located in Gainesville, Florida. The facility is a state-supported, land-grant university occupying approximately 2,000 acres. Currently, there are over 35,000 students enrolled at the University; the University employs an additional 15,000 people.

The main campus includes approximately 2,000 teaching and research laboratories. The laboratories generate small quantities of wastes which are managed in several waste management units throughout the facility. The facility is currently regulated as a generator of hazardous waste and is operating a RCRA Permitted Hazardous Waste Container Storage Facility.

Areas of the University of Florida subject to the corrective action requirements of the July 22, 1997, HSWA Permit are those solid waste management units (SWMUs) and areas of concern (AOCs) which have or may have released hazardous wastes or constituents to the environment. A total of thirty (30) SWMUs and four (4) AOCs have been identified from information submitted by the Permittee and from a RCRA Facility Assessment (RFA) Report prepared by an EPA contractor in December of 1993 and reviewed and finalized by EPA on May 23, 1994. Of the identified units to date, one (1) SWMU requires a RCRA Facility Investigation (RFI) to determine the extent of a known release and six (6) SWMUs and one (1) AOC requires Confirmatory Sampling to determine the presence or absence of a release.

One unusual investigation scenario which should be discussed further is the Old Murphy Landfill. The landfill was used to manage sanitary waste and, at times, general laboratory chemicals or waste such as glassware and other small containers. The Site Investigation Section of the Florida Department of Environmental Protection (FDEP) is currently performing a Source Investigation around the landfill. Although volatile organics have been detected in wells surrounding the landfill, the highest concentrations seem to be in the upgradient well. Over the years, there has been repeated controversy over the source of this contamination. Hopefully, the expanded groundwater monitoring beyond the boundaries of the landfill will allow for a more informed decision on the actual source of detected contamination.

Currently, the HSWA Permit lists the Old Murphy Landfill as requiring no further action at this time pending the Site Investigation Section's investigation of the groundwater

surrounding the Old Murphy Landfill. If the source of groundwater contamination is found to be the landfill, then the HSWA Permit will address any further characterization and remediation. If the source is found not to be the landfill, then the no further action requirement in the HSWA Permit will remain unchanged, and the Site Investigation Section will address needed corrective measures.

IV. MEDIA BY MEDIA DISCUSSION OF CONTAMINATION AND THE STATUS OF PLAUSIBLE HUMAN EXPOSURES

SOIL

Presently, information on the presence or absence of soil contamination is lacking in certain areas of the facility (e.g., two (2) acid tanks, a loading area, a ROTC small arms firing range, the sewer system and a construction debris landfill). However, there are two (2) units currently requiring HSWA investigation for which analytical information is available: the Rinse Gravel Pit at Building 63 and the Laboratory Drainfield for Building 508.

The Rinse Gravel Pit received pesticide spray mix and rinsewaters. Alachlor, Chlordane, Dicamba, Endosulfans A and B, Ethoprop, Dimethylamine (MCP) and tetraethyl pyrophosphate (TEPP) have all been found in the soil with maximum concentrations of 4,710 ppm, 33.3 ppm, 15.6 ppm, 9.22 ppm, 11.2 ppm, 64 ppm, 1,040 ppm and 88.2 ppm, respectively. Residential risk-based¹ levels for Alachlor, Chlordane, Dicamba, Endosulfans A and B, Ethoprop, MCP and TEPP are as follows: 8 ppm, 0.49 ppm, 2,300 ppm, 470 ppm, 470 ppm, not calculated, not calculated and 39 ppm, respectively. Only Alachlor, Chlordane and TEPP exceed their respective residential risk-based levels. Industrial risk-based levels for Alachlor, Chlordane and TEPP are 72 ppm, 4.4 ppm and 1,000 ppm. Further sampling is needed to determine the extent and level of contamination at this unit.

The Laboratory Drainfield received solvents, acids and other chemicals. Most of the wastewater came from the laboratory aspirator system. Two (2) composite soil sampling results from beside and below the Laboratory Drainfield tiles detected nine constituents. The maximum detected concentrations per constituent are as follows: arsenic (23.5 ppm), barium (11.7 ppm), cadmium (0.369 ppm), lead (14.4 ppm), selenium (0.045 ppm),

¹ The following are examples of promulgated or standardized risk-based levels used in this memo: 1) maximum contaminant limits (MCLs) for groundwater, 2) Federal or State Surface Water Quality Standards, 3) the media specific concentrations found in the most recent Region 3 Risk-Based Concentration Tables (i.e., soil and groundwater concentrations based on a risk level of 10^{-6} for carcinogens and a hazard quotient of 1 for noncarcinogens).

mercury (0.082 ppm), Dieldrin (9.25 pm), DDE (24.4 ppm), methylene chloride (1,500 ppm). The risk-based levels in soil for the above constituents are 0.4 ppm, 5,500 ppm, 78 ppm, 400 ppm, 390 ppm, 23 ppm, not calculated, 2 ppm and 85 ppm, respectively. Only arsenic and methylene chloride exceed their respective risk-based levels for a residential setting. Industrial risk-based levels for arsenic and methylene chloride are 3.8 ppm and 760 ppm. Further sampling is needed to determine the extent and level of contamination at this unit.

SOIL - HUMAN EXPOSURES

Based on the data at hand, human exposures to soil contamination at the Rinse Gravel Pit and the Laboratory Drainfield is possible. However, given that the concentrations for arsenic, TEPP and Alachlor are below industrial risk-based level, a land use more appropriate for the contaminated sites at the University, human exposures to these constituents is considered controlled. Although the very limited soil sampling does indicate that methylene chloride and Chlordane are above their respective industrial risk-based levels, methylene chloride is a frequent lab contaminant and the detected Chlordane concentration is below standard application concentrations. Therefore, it is concluded that human exposures are also controlled for these two constituents.

Because of the uncertainty regarding the presence or absence of soil contamination at most of the questionable areas of the facility along with the lack of a complete characterization at those two units with some environmental data, a final opinion on human exposures to soil contamination at the facility is not possible at this time.

GROUNDWATER

Presently, information on the presence or absence of groundwater contamination is lacking in certain areas of the facility (e.g., two acid tanks, a loading area, ROTC small arms firing range, the sewer system and a construction debris landfill). However, there are two units currently requiring HSWA investigation at the University for which analytical information is available: the Rinse Gravel Pit at Building 63 and the Laboratory Drainfield for Building 508.

Arsenic and lead have been detected in the upper Surficial Aquifer during the very limited groundwater sampling performed at the Laboratory Drainfield (18.3 ppb and 34.3 ppb, respectively). The risk-based levels for arsenic and lead in groundwater are 50 ppb (MCL) and 15 ppb (action level), respectively. Further sampling is needed to determine the extent and level of contamination at this unit.

The maximum concentrations detected at the Rinse Gravel Pit are 2.21 ppb (ethylene dibromide), 3.34 ppb (Alachlor), 1.24 ppb (Carbaryl) and 1.7 ppb (chloroform). The risk-based level for Alachlor is 0.84 ppb, and the risk-based number for chloroform is 0.1 ppb (interim MCL for total trihalomethanes). Risk-based levels for the other constituents have not been calculated. Further sampling is needed to determine the extent and level of contamination at this unit.

GROUNDWATER - HUMAN EXPOSURES

Although there are some shallow irrigation wells used for irrigation by the University, the University purchases potable water from the Gainesville Regional Utilities. Therefore, even though some contamination has been detected at a couple of onsite locations and the characterization of groundwater at every units under the HSWA requirement for further assessment is incomplete, **there is no current pathway for human exposure to any known or unknown groundwater contamination from onsite units associated with the University.**

Human exposures to the known onsite groundwater contamination linked to the University are controlled. However, because of the uncertainty regarding the presence or absence of groundwater contamination at other areas of the facility requiring further HSWA assessment along with the lack of a complete characterization at those two units with some historical groundwater data, **a final opinion on human exposures to offsite groundwater contamination at the facility is not possible at this time.**

AIR

Releases to air from soil, groundwater and/or surface water contaminated by SWMUs and/or AOCs at the facility is not known to be occurring at concentrations above relevant action levels, but sampling at every suspected unit has not yet been performed. **Because of the uncertainty regarding the presence or absence of air contamination at questionable areas of the facility, an opinion on plausible human exposures to air contamination is not possible at this time.**

SURFACE WATER

There are no surface water bodies directly associated with the units identified as requiring further investigation. Therefore, surface water associated with the facility is not under investigation. Because there is no surface water contamination linked to units under HSWA investigation, **there are no plausible human exposures which must be controlled due to contaminated surface water.**

V. STATUS CODE RECOMMENDATION FOR CA725:

A facility wide determination as to whether human exposures are controlled cannot be made. This position must be taken because complete assessment information is lacking for the all of the units deemed to require further investigation (see Section IV). It is recommended that CA725 IN (more information needed) be entered into RCRIS.

VI. GROUNDWATER RELEASES CONTROLLED DETERMINATION (CA750)

There are five (5) status codes listed under CA750:

- 1) YE Yes, applicable as of this date.
- 2) NA Previous determination no longer applicable as of this date.
- 3) NR No releases to groundwater.
- 4) NO Facility does not meet definition.
- 5) IN More information needed.

The first three (3) status codes listed above were defined in January 1995 Data Element Dictionary for RCRIS. The last two (2) status codes were defined in June 1997 Data Element Dictionary.

The status codes for CA750 are designed to measure the adequacy of actively (e.g., pump and treat) or passively (e.g., natural attenuation) controlling the physical movement of groundwater contaminated with hazardous constituents above relevant action levels. The designated boundary (e.g., the facility boundary, a line upgradient of receptors, the leading edge of the plume as defined by levels above action levels or cleanup standards, etc.) is the point where the success or failure of controlling the migration of hazardous constituents is measured for active control systems. Every contaminated area at the facility must be evaluated and found to have the migration of contaminated groundwater controlled before a "YE" status code can be entered.

If contaminated groundwater is not controlled in any area(s) of the facility, the NO status code should be entered. If there is not enough information at certain areas to make an informed decision as to whether groundwater releases are controlled, then the IN status code should be entered. If an evaluation determines that there are both uncontrolled groundwater releases for certain units/areas (NO) and insufficient information at certain units/areas of groundwater contamination (IN), then the

priority for the EI recommendation should be the NO status code.

In Region 4's opinion, the previous relevance of NA as a meaningful status code is eliminated by the June 1997 Data Element Dictionary's inclusion of NO and IN to the existing YE and NR status codes. In other words, YE, NR, NO and IN cover all of the scenarios possible in an evaluation or reevaluation of a facility for CA750. Therefore, it is Region 4's opinion that only YE, NR, NO and IN should be utilized to categorize a facility for CA725. No facility in Region 4 should carry a NA status code.

This evaluation for CA750 is the first formal evaluation performed for the University of Florida. Please note that CA750 is based on the adequate control of **all** contaminated groundwater at the facility.

The following discussions, interpretations and conclusions on contaminated groundwater at the facility are based on the following reference documents: 1996 Site Closure Plan for Building 508 Drainfield Area and the Pesticide Burial Pit Area, October 1995 Preliminary Assessment Report for the Chemical Disposal Site (Old Murphy Landfill), May 1994 RCRA Facility Assessment.

VII. STATUS CODE RECOMMENDATION FOR CA750:

Based on data contained in the documents referenced in Section V and summarized in the groundwater portion of Section IV, releases from the Rinse Gravel Pit and the Laboratory Drainfield have contaminated very limited areas of groundwater at concentrations above relevant risk-based action levels.

Although the groundwater is contaminated above relevant risk-based levels at two locations with some groundwater data, control measures have not been implemented to control the migration of contaminated groundwater. Because observed groundwater contamination is not controlled, it is recommended that CA750 NO be entered.

VIII. SUMMARY OF FOLLOW-UP ACTIONS

The University of Florida was issued a HSWA Permit on July 22, 1997. The data gaps identified in the previous sections will be addressed as part of the required Confirmatory Sampling and RCRA Facility Investigation. The CS and RFI Work Plans are due late October 1997. The University will have to be reevaluated once more complete information is gained on the seven (7) SWMUs and one (1) AOC requiring HSWA assessment.